

DEPARTMENT OF CONSUMER & INDUSTRY SERVICES

DIRECTOR'S OFFICE

GENERAL INDUSTRY SAFETY STANDARDS

Filed with the Secretary of State on July 5, 1974 (as amended May 17, 1983) **(as amended August 2, 1993)**

These rules take effect 15 days after filing with the Secretary of State

(By authority conferred on the director of the department of consumer and industry services by sections 16 and 21 of Act No. 154 of the Public Acts of 1974, as amended, and Executive Reorganization Order No. 1996-2, being §§408.1016, 408.1021, and 445.2001 of the Michigan Compiled Laws)

R 408.13811, R 408.13812, and R 408.13882 of the Michigan Administrative Code, appearing on pages 3749, 3757, and 3758 of the 1979 Michigan Administrative Code and page 366 of the 1983 Annual Supplement to the Code, are amended to read as follows:

Visit our web site at: www.michigan.gov/cis (select "Workplace Safety and Health" from the left navigation bar)

PART 38. HAND AND PORTABLE POWERED TOOLS

TABLE OF CONTENTS

Scope	R 408.13801	Knives	R 408.13840
Definitions C to F	R 408.13804	Pliers	R 408.13841
Definitions H	R 408.13805	Screwdrivers	R 408.13843
Definitions J to M	R 408.13806	Wrenches	R 408.13844
Definitions P	R 408.13807	Chain falls and hoist and pullers, capacity	R 408.13845
Definitions R and S	R 408.13808	Chain falls and hoist and pullers, use	R 408.13846
Employer responsibility	R 408.13811	Hot sticks	R 408.13847
Employee responsibilities	R 408.13812	Portable powered tools generally	R 408.13861
Storage and handling	R 408.13821	Portable circular saws	R 408.13863
Inspection	R 408.13822	Portable pneumatic grinders	R 408.13864
Controls	R 408.13823	Powered stapler and nailers	R 408.13865
Modification	R 408.13824	Pneumatic powered nut runner	R 408.13866
General, hand tools	R 408.13831	Tools; design and construction	R 408.13871
Abrasive blast cleaning nozzles	R 408.13833	Powder actuated tools generally	R 408.13872
Axes, hatchets, hammers and mauls	R 408.13834	Powder actuated tools; training	R 408.13873
Chisels, punches, star drills, drift pins and wedges	R 408.13835	Power levels	R 408.13874
Files and rasps	R 408.13836	Powder actuated tool defects and misfires ...	R 408.13875
Jacks, use	R 408.13838	Refueling; operation in enclosed area prohibited; exception	R 408.13881
Jacks, inspection	R 408.13839	Chain saws	R 408.13882

GENERAL PROVISIONS

R 408.13801. Scope.

Rule 3801. This part provides for the safe maintenance, operation and use of hand tools and portable powered tools, regardless of ownership in, around or about a place of employment.

R 408.13804. Definitions C to F.

Rule 3804. (1) "Chain fall" means a manually powered hoisted device employing a load bearing chain and an endless hand chain to raise or lower loads.

(2) "Explosive load" means a substance capable of producing a propellant force in a powder actuated tool.

(3) "Fastener driver" means a portable powered tool such as a nut runner, impact wrench, stapler, screwdriver, nailer and riveter.

R 408.13805. Definitions H.

Rule 3805. (1) "Hammer actuated piston tool" means a device which, when struck by a hammer and supplemented

by an explosive load, moves a captive piston to drive a fastener into a work surface.

(2) "Hand tool" means an instrument used or worked by hand.

(3) "High velocity tool" means a device which, when used with an explosive load, propels a fastener at a velocity more than 300 feet per second when measured 6 1/2 feet from the muzzle end of the tool.

(4) "Hoist and puller", sometimes called a come-along, means a portable, manually operated device for lifting, lowering or moving by a pulling force.

(5) "Hot stick" means a dielectric tool extension used when working on energized conductors and apparatus.

R 408.13806. Definitions J to M.

Rule 3806. (1) "Jack or ram" means a device, except an automobile bumper jack, used for lifting, lowering or moving a load by application of a pushing force.

(2) "Low velocity tool" means a device which, when used with an explosive load, propels a fastener at a velocity less than 300 feet per second when measured 6 1/2 feet from the muzzle end of the tool.

(3) "Mushroom" means to overrun the shank or head of a tool by battering the striking end.

R 408.13807. Definitions P.

Rule 3807. (1) "Platen sander" means a portable powered tool which has abrasive paper fastened to a base or platen which moves in an orbital oscillating motion.

(2) "Pneumatic powered nut runner" means an air operated wrench used to drive a threaded fastener into or onto a work piece.

(3) "Portable powered stapler and nailer" other than general office staplers, means a tool which drives a staple or nail by mechanical, pneumatic or electrical power into a work piece.

(4) "Portable powered tool" means a tool carried and moved by hand and powered by something other than manual force.

(5) "Powder actuated tool" means a device for making instantaneous forced entry into materials by use of a tool, a fastener and an explosive load.

(6) "Protective shield" means a device or guard attached to the muzzle end of a powder actuated tool to confine flying particles.

R 408.13808. Definitions R and S.

Rule 3808. (1) "Rating" means the maximum working load for which an object is designed to handle under given circumstances.

(2) "Stall type tool" means a powered nut runner which stalls out under load but maintains pressure on the fastener until the power supply to the motor is manually terminated by means of the throttle release or other power disconnect.

R 408.13811. Employer responsibility.

Rule 3811. An employer shall do all of the following:

(a) Ensure that an employee has been trained in the use of hand tools and portable powered tools before authorizing their use.

(b) Maintain, or require to be maintained, hand tools and portable powered tools free of defects that could cause injury to an employee.

(c) Comply with the requirements of this part.

R 408.13812. Employee responsibilities.

Rule 3812. An employee shall do all of the following:

(a) Use personal protective equipment where required by the employer or dictated by the hazard of the job.

(b) Not use a tool for other than its designated or approved use.

(c) Report defective hand tools and portable power tools to his or her supervisor.

R 408.13821. Storage and handling.

Rule 3821. (1) A hand tool or portable powered tool shall be stored in a manner to prevent damage which would make the tool unsafe for use.

(2) A sharp or pointed tool, such as, but not limited to, chisels, drill bits, and awls, shall be carried in 1 of the following ways:

- (a) With the edges or points protected.
- (b) In a tool tray.
- (c) In a cart.
- (d) In a sheath.
- (e) In the hand with the sharp edges turned away from the body.

(3) A sharp or pointed tool, when stored in a rack or bin, shall have the sharp edge or point inward or otherwise protected or stored to prevent injury.

R 408.13822. Inspection.

Rule 3822. (1) A portable pneumatic grinder not legibly marked with the manufacturer's rated speed shall not be used.

(2) A tool shall be inspected visually by the employee using the tool for safe operation before daily use, and, when found defective, it shall be removed from service.

(3) The speed of a portable air grinder shall be checked with a tachometer or other device for reading r.p.m. (revolutions per minute) when purchased, annually, and after repairs to ensure the speed does not exceed the manufacturer's rated speed. A grinding wheel shall not be installed if its rated speed is less than the grinder.

R 408.13823. Controls.

Rule 3823. (1) A hand-held powered circular saw having a blade diameter more than 2 inches; an electric, hydraulic, or pneumatic chain saw; and a percussion tool without positive accessory holding means shall be equipped with a constant pressure switch or control that will shut off the power when the pressure is released. A gasoline-powered, hand-operated tool shall be equipped with a constant pressure throttle. A throttle position lock may be provided for starting only.

(2) All of the following hand-held tools shall be equipped with a constant pressure switch or control and may have a lock-on control if turn off can be accomplished by a single motion of the same finger or fingers that turn it on:

- (a) A powered drill.
- (b) Tapper.
- (c) Fastener driver.
- (d) Grinder with a wheel more than 2 inches in diameter.
- (e) Disc sander with disc more than 2 inches in diameter.
- (f) Belt sander.
- (g) Reciprocating saw.
- (h) Saber saw.
- (i) Scroll saw.
- (j) Jig saw with a blade shank more than a nominal 1/4 inch.

(k) Similarly operating power tools.

(3) Other hand-held tools, such as, but not tools limited to the following, may be equipped with either a positive on-off control or other control prescribed in subrules (1) and (2) of this rule:

- (a) A platen sander.
- (b) Grinder with a wheel 2 inches or less in diameter.
- (c) Disc sander with discs 2 inches or less in diameter.
- (d) Router.
- (e) Planer.
- (f) Laminate trimmer.
- (g) Nibbler.
- (h) Shear.
- (i) Saber saw.
- (j) Scroll saw.
- (k) Jig saw with blade shank of a nominal 1/4 inch or less.

(4) The operating control on a hand-held power tool shall be located so as to prevent accidental operation, if such operation would constitute a hazard to an employee.

(5) A hand-held power tool shall be disconnected from its power source when it is serviced or the point of operation device is changed by a device or tool, except for a hand-held drill less than 3/8 inch, platen sander, 2 inch belt sander, or scroll saw.

(6) Subrules (1) and (5) of this rule do not apply to the following:

- (a) Concrete vibrators.
- (b) Concrete breakers.
- (c) Powered tampers.
- (d) Jack hammers.
- (e) Rock drills.
- (f) Garden appliances.

- (g) Household and kitchen appliances.
- (h) Personal care appliances.
- (i) Medical or dental equipment.
- (j) Fixed machinery or equipment.

R 408.13824. Modification.

Rule 3824. A tool and its power source shall not be modified, except by an authorized and trained employee or qualified outside service.

HAND TOOL PROVISIONS

R 408.13831. General, hand tools.

Rule 3831. A hand tool shall be used only for the purpose for which it was designed or approved.

R 408.13832. Rescinded.

R 408.13833. Abrasive blast cleaning nozzles.

Rule 3833. (1) An abrasive blast cleaning nozzle shall be equipped with a constant pressure control.

(2) An abrasive blast cleaning nozzle shall be mounted on a support when not in use.

R 408.13834. Axes, hatchets, hammers and mauls.

Rule 3834. An axe, hatchet, hammer or maul handle shall be replaced when it becomes cracked, broken or splintered. A wood handle shall be secured with wedges or equivalent means.

R 408.13835. Chisels, punches, star drills, drift pins and wedges.

Rule 3835. (1) A chisel, punch, star drill, drift pin or wedge with a metal striking end shall not be used when the end becomes mushroomed. The striking end shall be ground with a crowned radius and beveled edge.

(2) The working end of a chisel, punch, star drill, drift pin or wedge shall be maintained as designed.

R 408.13836. Files and rasps.

Rule 3836. A file or rasp with a tang shall be equipped with a handle fitted and secured to the tang, when in use.

R 408.13838. Jacks, use.

Rule 3838. (1) The rated capacity of a jack shall not be exceeded. The rated capacity shall be permanently marked on the jack.

(2) A jack shall be set on or against a firm foundation or blocking. If a jack, at the point of contact with the load, can slip, a wood block or nonslip device shall be placed between the cap and the load.

(3) A jack shall be equipped with a means such as, but not limited to, a stop, a bypass, an indicator or other device which shall be watched to prevent overrun.

(4) After a load has been raised or moved, it shall be secured by cribbing, blocks or stands before work is started under or between the supported load.

(5) A hydraulic jack exposed to freezing temperatures shall be protected by use of anti-freeze liquid.

R 408.13839. Jacks, inspection.

Rule 3839. (1) A jack shall be inspected for leaks, mechanical defects, and lubrication according to the following requirements:

- (a) Not less than semi-annually.
 - (b) Before and after a special use or abnormal shock.
 - (c) After repairs or servicing.
- (2) A defective jack shall be tagged and removed from service.

R 408.13840. Knives.

Rule 3840. (1) A fixed blade knife shall be carried in a sheath, in a tray or other equivalent protective means.

(2) A folding knife which cannot be locked in place shall not be used in a manner where the blade could fold on the fingers.

R 408.13841. Pliers.

Rule 3841. Pliers with sprung jaws, a worn face or worn joint pin shall be replaced.

R 408.13843. Screwdrivers.

Rule 3843. (1) An object being worked on with a screwdriver shall not be held in the hand, on the lap or under the arm, except when protection is afforded by the object or other means.

(2) A screwdriver used for electrical work shall be equipped with a nonconductive handle. The shank and fasteners shall not project through the handle.

(3) A blade type screwdriver shall be maintained with a flat tip at right angles to the shank and have almost parallel faces.

(4) A screwdriver with 1 of the following defects shall not be used:

- (a) Split or broken handle.
- (b) Cracked or broken blade.
- (c) Loose shank in handle.
- (d) Worn blade.
- (e) Bent shank of a straight screwdriver.

R 408.13844. Wrenches.

Rule 3844. (1) A wrench with spread, distorted or cracked jaws shall not be used.

(2) A wrench, except a wrench designed for that purpose, shall not be subjected to hammering.

R 408.13845. Chain falls and hoist and pullers, capacity.

Rule 3845. (1) A chain fall or hoist and puller shall be used at not more than its rated capacity.

(2) The capacity of a chain fall or hoist and puller shall be permanently labeled or marked on it.

(3) An accessory, such as a chain or cable used to secure or support a chain fall or hoist and puller, shall have a capacity of not less than the chain fall or hoist and puller.

(4) An object subject to a lift or pull by a chain fall shall have the capacity to absorb the lift or pull without creating a hazard to an employee in the area.

R 408.13846. Chain falls and hoist and pullers, use.

Rule 3846. (1) A chain fall or hoist and puller shall be secured to an anchorage and the load attached to the chain fall or hoist and puller in a manner which will prevent inadvertent disengagement.

(2) When a chain fall or hoist and puller are under tension of a load, a positive action shall be required to release the tension.

(3) A hoist and puller lever handle shall not be operated with an extension handle except as furnished by the manufacturer.

(4) A chain fall or hoist and puller shall be visually inspected for observable defects before each job use by the employee using the tools.

R 408.13847. Hot sticks.

Rule 3847. (1) A hot stick and any tool attached to it shall be clean and inspected for damage before use.

(2) A hot stick which has been repaired by a knowledgeable employee or an outside service and tested to meet the requirements of subrule (3) of this rule.

(3) A new hot stick purchased after the effective date of this part shall not be used unless it has been certified and labeled by the manufacturer to meet the following standards:

(a) Fiberglass, 100,000 volts per foot of length for 5 minutes, or any equivalent test.

(b) Wood, 75,000 volts per foot of length for 3 minutes, or any equivalent test.

(4) A hot stick shall be stored in a manner to protect it from damage. A hot stick made of wood shall be protected from moisture.

(5) A hot stick shall not be used in excess of the rated capacity certified by the manufacturer.

(6) The minimum working distance and minimum clear hot stick distances prescribed in table 1, when using live-line tools, shall not be violated.

(7) Table 1 reads as follows:

**TABLE 1
ALTERNATING CURRENT — MINIMUM DISTANCES**

Voltage range (phase to phase) Kilovolt	Minimum working and clear hot stick distance
2.1 to 15.....	2 ft. 0 in.
15.1 to 35.....	2 ft. 4 in.
35.1 to 46.....	2 ft. 6 in.
46.1 to 72.5.....	3 ft. 0 in.
72.6 to 121.....	3 ft. 4 in.
138 to 145.....	3 ft. 6 in.
161 to 169.....	3 ft. 8 in.
230 to 242.....	5 ft. 0 in.
345 to 362.....	¹ 7 ft. 0 in.
500 to 552.....	¹ 11 ft. 0 in.
700 to 765.....	¹ 15 ft. 0 in.

¹NOTE: For 345-362 kv. 500-552 kv. and 700-765 kv., the minimum working distance and the minimum clear hot stick distance may be reduced provided that such distances are not less than the shortest distance between the energized part and the grounded surface.

R 408.13861. Portable powered tools generally.

Rule 3861. (1) An electrically powered tool shall have an approved ground unless it is double-insulated and carries a permanent label or mark so stating.

(2) A pneumatically powered tool shall be equipped with a tool retainer where the absence of a retainer would result in a tool being ejected.

(3) Hose and hose fittings used with pneumatic powered tools shall have pressure ratings not less than the supply source.

(4) Hose connections shall have a positive-locking action or the connecting sections shall have a safety chain to restrain any whipping action if the sections become disconnected.

(5) An air supply line shall be regulated to maintain the pressure at not more than the pneumatic tool rating.

(6) Safety devices and operating controls shall not be made inoperative.

R 408.13863. Portable circular saws.

Rule 3863. (1) A portable, power driven circular saw with a blade more than 2 inches in diameter shall have guards above and below the base plate or shoe. The upper guard shall cover the saw to the depth of the teeth, except for the minimum arc required to permit the base to be tilted for bevel cuts. The lower guard shall cover the saw to the depth of the teeth, except for the minimum arc required to allow proper retraction and contact with the work. When the tool is withdrawn from the work, the lower guard shall return to the covering position automatically and instantly.

(2) The guard shall not be tied back or removed except for servicing.

(3) A cracked circular saw blade shall be removed from service.

R 408.13864. Portable pneumatic grinders.

Rule 3864. (1) A portable pneumatic grinder shall be operated at a speed of not more than the grinder's rated speed.

(2) A line supplying air to a portable pneumatic grinder regulated by a governor shall be equipped with a filter to remove water, contaminated oil and dirt.

(3) A portable pneumatic grinder regulated by a governor shall be provided with a continuous lubrication means.

R 408.13865. Powered stapler and nailers.

Rule 3865. (1) A portable powered stapler or nailer, capable of driving a fastener with a diameter more than .0475 inch — 18 gauge A.W.G., at more than 75 feet per second, shall be designed so that the operator is required to make not less than 2 separate operations to activate the tool with 1 operation being to place the tool against the work surface.

(2) The design shall prevent discharge of the stapler during loading or when dropped.

(3) A portable powered stapler or nailer shall not be pointed or discharged at other than the work piece.

(4) The operator of a portable powered stapler or nailer and those employees within the striking distance of its fastener shall be provided with and use eye protection as prescribed in Part 33. Personal Protective Equipment, being R 408.13301 et seq. of the Michigan Administrative Code.

(5) A positive actuation of the operator control shall be required to propel each fastener from a powered stapler or nailer.

(6) When relieving a jam-up of a fastening device, the source of power shall be disconnected.

(7) At the beginning of each shift, a portable powered stapler and nailer shall be tested for safe operation.

(8) Safety devices and operating controls shall not be made inoperative.

R 408.13666. Pneumatic powered nut runner.

Rule 3866. (1) A pneumatic powered angle nut runner with a trigger type operating control shall have the control located so that the reaction force of the runner does not create additional pressure on the trigger.

(2) A mechanical means shall be provided to absorb torque reaction of a stall type tool and used where:

(a) The resultant sustained force on an operator of an angle head nut runner or an inline tool with dual off-set handles is more than 50 pounds.

(b) The reaction torque from an inline nut runner with a single offset handle is more than 100 inch pounds.

(c) The reaction torque of an inline nut runner without an offset handle is more than 30 inch pounds.

(3) A powered nut runner other than a stall type shall be provided a device, such as a reaction bar, when the reaction force on the operator is such that the operator cannot control the tool.

R 408.13871. Power-actuated tools; design and construction.

Rule 3871. A powder-actuated tools shall be designed and constructed as prescribed in section 6 of the ANSI standard, A10.3-1977, powder-actuated fastening systems, which is adopted herein by reference and may be inspected at the Lansing office of the department of consumer and industry services. This standard may be purchased at a cost of \$3.50 from the American National Standards Institute, 1430 Broadway, New York, New York 10018, or from the Michigan Department of Consumer and Industry Services, 7150 Harris Drive, Box 30643, Lansing, Michigan 48909.

R 408.13872. Powder-actuated tools generally.

Rule 3872. (1) An employer who uses powder-actuated tools shall establish and maintain, at the place of employment, a list or other record of employees qualified and trained to operate powder-actuated tools of the type provided by the employer.

(2) An employee shall receive training and instruction from 1 of the following:

(a) A dealer or distributor of powder-actuated tools who has been authorized by the tool manufacturer to provide such training.

(b) An authorized employee of a powder-actuated tool manufacturer.

(c) An employer or an authorized employer representative.

(3) A powder-actuated tool which is found not to be in proper working order or which develops a defect during use shall be immediately removed from service, tagged, and not used until repaired. The tag shall be as prescribed in R 408.13731.

(4) The employer shall have a defective powder-actuated tool repaired only by an authorized repair person.

R 408.13873. Powder-actuated tools; training.

Rule 3873. (1) The training of an employee to use a powder-actuated tool shall, at a minimum, include the following items:

- (a) Cleaning.
- (b) Inspection.
- (c) Operation.
- (d) Use limitations.
- (e) Power levels.
- (f) Misfire procedure.

(2) Before approving an employee as an operator of a powder-actuated tool, the employer shall have the employee demonstrate competence by actually operating the powder-actuated tool in a safe manner.

R 408.13874. Power levels.

Rule 3874. (1) The power level for cased or caseless loads shall be identified by a color and numbering system as prescribed in table 2, except that caseless loads are limited to power levels 1 to 6. The combination of the case color and load color shall designate the load level. Both the explosive load and the carton or box shall provide visual indication of the load level.

(2) Studs or other fasteners used in a powder-actuated tool shall be only those specifically manufactured for use in such tools.

(3) Table 2 reads as follows:

**TABLE 2
IDENTIFICATION OF CASED LOADS**

Power Level	Color Identification Case Color Load Color		Nominal Velocity (=45 fps)
1	Brass	Gray	300
2	Brass	Brown	390
3	Brass	Green	480
4	Brass	Yellow	570
5	Brass	Red	660
6	Brass	Purple	750
7	Nickel	Gray	840
8	Nickel	Brown	930
9	Nickel	Green	1020
10	Nickel	Yellow	1110
11	Nickel	Red	1200
12	Nickel	Purple	1290

NOTE: The nominal velocity applies to 3/8-inch diameter 350-grain ballistic slug fired in a test device and has no reference to actual fastener velocity developed in any specific size or type of tool.

R 408.13875. Powder-actuated tool defects and misfires.

Rule 3875. (1) In case of a misfire, the operator shall hold the powder-actuated tool in the operating position for not less than 30 seconds. The operator shall then try to operate the tool a second time. The operator shall wait another 30 seconds, holding the tool in the operating position, then the operator shall proceed to remove the explosive load in strict accordance with the manufacturer's instructions.

(2) Misfired cartridges shall be disposed of in a safe manner.

R 408.13876. Rescinded.**R 408.13881. Refueling; operation in enclosed area prohibited; exception.**

Rule 3881. (1) A fuel-powered tool shall be stopped while being refuelled, serviced, or maintained.

(2) A fuel-powered tool shall not be operated in an enclosed area, unless the toxic fumes are below the maximum allowable limits prescribed by the department of consumer and industry services in R 325.2430.

(3) Where refueling is done with a portable container, the container shall be an approved safety can with an automatic closing cap and flame arrestor.

R 408.13882. Chain saws.

Rule 3882. (1) A chain saw shall be used only for cutoff work such as cutting trees, limbs, poles and beams. A chain saw shall not be used to open a hole in a solid object such as a floor, wall, or panel. Chain saws that are specifically designed for firefighting operations to cut holes in roofs, floors, and walls are exempt from this rule.

(2) A chain saw shall be equipped with a positive-type on-off ignition switch that is conveniently located to allow the operator to move it into the off position without relinquishing his or her grip on the saw.

(3) A manual chain oiler control, if provided on a chain saw, shall be located so that it can be operated without relinquishing a secure grip on the saw.

(4) An engine throttle control, if provided on a chain saw, shall be located so that it can be operated without relinquishing a secure grip on the saw.

(5) A chain saw shall have a guard that protects the throttle lever from casual contact from brush or other foreign objects.

(6) A chain saw that is equipped with a centrifugal clutch shall have a throttle control, carburetor, and clutch system so that the engine idle speed becomes lower than the clutch engagement speed if the throttle control is released, thereby allowing the chain to come to a complete stop.

(7) A chain saw's moving parts, such as a fly-wheel, rotating screen or clutch, shall be guarded. A saw's chain shall be guarded adjacent to the handle area and the sawdust shall be directed away from the operator.

(8) A saw's chain shall be stopped if it is not being used for sawing.

(9) A chain saw shall be carried by the top handle with guide bar to the rear.

(10) A chain saw shall not be started within 10 feet of the place where it was refuelled.

Total Units Printed:	3,000
Total Printing Cost:	\$356.30
Cost Per Unit:	\$0.119